DOCUMENT RESUME

ED 392 221 EC 304 652

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TITLE A Classroom Collaborative Strategy Designed To Improve Oral Motor Skill Deficits in Developmentally Delayed Pre-Kindergarten Students.
PUB DATE Jun 95
NOTE 74p.; M.S. Practicum, Nova Southeastern University.
PUB TYPE Dissertations/Theses - Practicum Papers (043) -- Reports - Descriptive (141)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Articulation Impairments; *Communication Skills; *Cooperative Planning; Delayed Speech; Developmental Delays; Educational Cooperation; Interprofessional Relationship; Outcomes of Treatment; Preschool Children; Preschool Education; Skill Development; *Speech Language Pathology; *Speech Therapy; *Verbal Communication
IDENTIFIERS *Teacher Collaboration

ABSTRACT

This practicum report describes the design and implementation of an oral motor program to increase the verbal communication skills of seven pre-kindergarten children with developmental delays, including hypotonia in oral motor development with moderate to severe articulation difficulties. Collaborative planning by the pre-kindergarten special education teacher and a speech and language pathologist formulated activities to promote oral motor development. The target group completed an oral motor exercise activity daily for 12 weeks. The program's objective was for 70 percent of the target group to achieve a 70 percent proficiency score on oral volitional jaw, lip, and tongue movements; multisyllabic words; and diadochokinetic tasks. Comparison of pre- and post-test performance indicated the target group met program objectives with a post-test score average of 73 percent; the outcomes enabled the target group to become better verbal communicators. Appendices include the pre- and post-test of oral motor skill development and the daily record sheet to track progress. (Contains 14 references.) (DB)

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A CLASSROOM COLLABORATIVE STRATEGY DESIGNED TO IMPROVE ORAL MOTOR SKILL DEFICITS IN DEVELOPMENTALLY DELAYED PRE-KINDERGARTEN STUDENTS

by

Lorri J. Hoffman

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A Final Report submitted to the Faculty of the Fischler Center for the Advancement of Education of Nova Southeastern University in partial fulfillment of the requirements for the degree of Master of Science

The abstract of this report may be placed in the University database system for reference.

June 1995

EC304652

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Abstract

A Classroom Collaborative Strategy Designed To Improve Oral Motor Skill Deficits in Developmentally Delayed Pre-Kindergarten Students. Hoffman, Lorri J., 1995. Practicum Report, Nova Southeastern University, Fischler Center for the Advancement of Education.
Descriptors: Oral Motor Skill Development/Pre-kindergarten Speech and Language Development/Early Childhood Communication Skills/Oral Sensorimotor Therapy/Speech and Language Pathologist/Service Delivery Models/ Classroom Collaborative Models.

The author designed and implemented an oral motor program to increase the verbal communication skills of developmentally delayed pre-kindergarten students. Utilizing instructional expertise through collaborative planning, a pre-kindergarten special education teacher and a speech and language pathologist formulated activities to promote oral motor development. The target group completed an oral motor exercise activity daily within the pre-kindergarten classroom. The objectives of the program were for 70% of the target group to achieve a 70% proficiency score in oral volitional jaw, lip, tongue movements, multisyllabic words, and diadochokinetic tasks. The target group participated in a pre- and post-test created by the practicum writer. Program objectives were met with the target group through a positive response post-test score average of 73%. Appendices include a pre and post-test of oral motor skill development and a daily record sheet.

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CHAPTER I

Purpose

Background

The site for the practicum was a recently built elementary school located in southwest Florida. The population of the county was approximately 175,000 consisting mainly of retirees and young families. Tourism, construction, retail trade, and agriculture were the predominant industries. The overall health of the local economy was both strong, and diversified, which contributed to the influx of new residents.

The location of the school was within a large developing community, comprised of upper middle class families, and active retirees. Built within the last five years, the school provided a first rate educational environment. Through recent rezoning, 25 percent of the 1993-94 students were new to the

school. The percentage of children on free or reduced lunch had gone from eight percent in 1990, to 22 percent in 1993-94, which also correlated with recent increases in the student mobility rate from 22 percent in 1993, to 44 percent in 1994.

Student population of the school was 1028. Ethnic and racial diversity within the student body was: 94.5 percent Caucasian, 3.8 percent Hispanic, 1.4 percent Black, .3 percent Asian, and .1 percent Indian. Distribution of students by gender was: male 542 and female 486. The student attendance rate was 96 percent.

The school provided several educational programs with additional services to assist children with special needs. Included in the regular education program were: six kindergarten classes, four first grade classes, six second grade classes, six third grade classes, five fourth grade classes, and five fifth grade classes. Four hundred and forty students were enrolled in Exceptional Student Education (ESE) programs. The range of ESE programs encompassed the

following classrooms: two educable mentally handicapped, two specific learning disabilities, one visually impaired, one emotionally handicapped, one gifted, six pre-kindergarten handicapped, two pre-kindergarten inclusion, one occupational and physical therapy, and one speech and language.

The administration, faculty and staff were comprised of one principal, one assistant principal, one curriculum specialist, two guidance counselors, one psychologist, one social worker, two media specialists, two art teachers, two music teachers, three physical education teachers, 35 regular classroom teachers, 15 special education teachers, one speech clinician, one pre-kindergarten speech pathologist, one occupational therapist, one physical therapist, and 23 support staff. The percentage of teachers by degree level were 58 percent Bachelor and 42 percent Masters. The principal had a Doctorate degree. All faculty members maintained professional certification in Florida. The school operated on a six and one-half hour student day and a seven and

one-half hour faculty day.

The pre-school environment played an important role for kindergarten students who were on either free, or reduced lunch programs. Forty-six percent of the 1993-94 kindergarten class had participated in various developmental programs. The school encouraged active parent participation in resource utilization, i.e., parent lending library and parent education training. Parent Teacher Association meetings encouraged a strong working relationship with the community, which was demonstrated by successful fundraisers and extra school functions.

The practicum writer was hired for the 1994-95 school year as a pre-kindergarten handicapped teacher. The practicum writer earned a Bachelor of Arts Degree in 1978, and was certified in mentally handicapped, specific learning disabilities, and pre-kindergarten handicapped. The practicum writer also had five years of teaching experience in mentally handicapped and two years of teaching experience in specific

learning disabilities. The youngest brother of the practicum writer has Down Syndrome, which has inspired and encouraged the author in this endeavor.

The practicum study took place in the author's self-contained pre-kindergarten handicapped class. There was a separate wing which incorporated five other pre-kindergarten handicapped classes, two pre-kindergarten inclusion classes, a resource room, and a pre-kindergarten speech and language lab. The author's classroom teacher-to-student ratio was 1:11, which included eight boys and three girls. A paraprofessional assisted the students. The assistant's experience with handicapped preschool children was an important asset to the program.

The classroom environment included a full working kitchen, two large handicapped equipped bathrooms, an observation window, and a teacher work station. The room had approximately 600 square feet, and was brightly lit with over 180 square feet of window area. Centers in the room

consisted of: dramatic play area, block area, quiet area, art area and a large group area. A large, well equipped playground was designed specifically for all the pre-kindergarten programs.

The practicum writer was responsible for the development of an Individual Education Plan (IEP) for each student. The plan was designed to appropriately meet the personal/social, cognitive, self-help, communication, and motor skill development for each student. The decision for placement of these students in the ESE program was determined by the level of development, as indicated by the Battelle Developmental Inventory in the following skill areas: cognitive, communication, motor, adaptive, and personal/social. Students in the classroom had tested below the appropriate developmental levels in one area by 25 percent, or in two areas by 20 percent in the preceding skill areas, and were labeled developmentally delayed (DD) according to Florida's eligibility criteria.

The target group consisted of five boys and two girls labeled DD in the practicum writer's pre-kindergarten handicapped classroom. Four of the students were three years old and three were four years old. All the students in the target group met Florida's standard eligibility requirements for speech and language intervention. The criteria consisted of score results on the Goldman-Fristoe Test of Articulation; three sounds delayed by one year from chronological age (CA), or two sounds delayed by two years from CA, or one sound delayed by three years from CA, or sixteenth percentile, or nine months delayed from CA on the Khan-Lewis Phonological Analysis.

Developmental lags in the attainment of neuromotor behavior connected with the oral apparatus, in the progression of reflex patterns, or in the acquisition of beginning speech and language skills, suggests the possibility of future difficulties. Speech development proceeds rapidly from birth to age three or four. If a child shows signs of neuromotor

delay, concerns are justified about lags in speech development of a few weeks. Abnormal tonic reflexes often suggest delays or abnormal development of the central nervous system. These resulting abnormalities in the distribution of muscle tone can interfere with respiration, phonation, and articulation required for good speech. Characteristics of hypotonia (low muscle tone) are: drooping head, jaw, and lips. Speech problems of this nature require intensive instruction. (Bailey & Wolery, 1989) The target group within the study demonstrated hypotonia in oral motor development with moderate to severe articulation difficulties.

The traditional pull-out therapy was being conducted at the practicum site for speech instruction. It had not kept pace with the current needs of pre-kindergarten developmentally delayed students. On-task classroom time was too limited to produce the necessary overall gains for students that required intensive oral motor therapy. Further exposure from this discrepancy was due to the lack of carry-over instruction

from the pull-out speech classroom, which denied the regular classroom teacher pertinent instructional experience. Specialized teacher collaborations within the school setting when properly designed and implemented have shown effective instructional results.

The shortage of speech and language specialists in the school system, and the high number of pre-kindergarten students needing speech and language therapy, have produced a challenge to a commensurate level of speech and language instruction. A collaboration with the speech and language pathologist must evolve into regular classroom instruction in order to improve communication skills in developmentally delayed pre-kindergarten students. The reason behind a collaborative effort partially stems from the practicum writer not having an extensive background in speech and language therapy.

Problem Statement

The purpose of pre-kindergarten programs in the public

school system was to offer early intervention strategies to help improve deficient skills. The timely opportunity to influence oral motor skill improvement in developmentally delayed children was an issue that impacted not only a child's ability to communicate, but also a child's relationships with family and friends. The traditionally accepted practice of pull-out speech and language therapy programs did not fully devote enough meaningful time and collaborative effort to foremost speech objectives.

Typically, the pull-out program took students out of the regular classroom environment for intensive instruction. The sessions at the practicum site lasted for 30 minutes, two days per week. Beyond the periodic involvement of the speech pathologist within a separate room environment, the regular classroom teacher did not have the opportunity to observe and integrate specific speech instruction. Skills and exercises taught in the speech lab were not always performed in other settings by the student. There rarely appeared to be an

improved utilization of speech skills outside the language lab. Important discrepancies existed between the limited time opportunity of productive early intervention and the objectives of the present instructional service delivery system. Delivery frequency did not sufficiently respond to the expectant results of increased communication skills. There was not enough managed speech therapy for developmentally delayed students, because the speech and language pathologist was scheduled for pull-out instruction only 30 minutes, two times a week.

The practicum writer observed the level of unintelligible speech in the target group, and further observed more particularized speech deviance through the facilitation of the speech and language pathologist. A review of speech test results emphasized a wide range of various oral motor skill delays. In addition, the practicum writer witnessed many examples of oral motor tactile hypersensitivity, or hyposensitivity, within the target group, as displayed by

hand- to-mouth and object-to-mouth play activities.

Speech disorders have been cited to be the most frequently reported handicapping condition among preschoolers. Data from the Goldman-Fristoe Test of Articulation evaluation identified the lack of oral motor skill development by 30 percent in the target group. All standardized speech and language tests were administered by the speech and language pathologist. School records indicated varying levels of deficiencies in the following oral motor and speech skills:

1. Oral volitional movements (jaw, lip, and tongue).
2. Vowel and consonant production in words.
3. Diadochokinetic tasks.

The students did not have problems with the respiratory system, or any structural malformations (such as a cleft palate), or neuromuscular disorders (such as cerebral palsy) that may normally be associated with this type of oral motor disorder. The target group displayed a lack of coordination in

fine oral motor movements of the articulators that produce distinctive sounds.

The pre-test (Appendix A, p.66) was designed by the practicum writer, with the assistance of the speech and language pathologist, according to the school district's curriculum guide. The following Tables 1-5, which represent the pre-test, were administered to each individual student within the target group. Each student was tested in a separate room away from distractions and other students. Facial manipulation, modeling, and verbal imitation were employed to determine skill level. Data was recorded with a plus (+) sign that indicated a correct response, and a minus (-) sign that indicated an incorrect response. Each student was given one trial for each oral movement and sound response.

Table 1 tested the target population individually in the area of jaw control. Some students within the target group demonstrated a degree of jaw immobility and instability that was too loose for proper articulation. The normal sequence for

jaw control should be developed within 15-18 months of age (Bailey & Wolery, 1989). Tests were done on jaw movements, as follows:

1. Resistance was created by pushing gently upward on the chin while the student tried to move the jaw downward.

2. Resistance to upward movement utilized the same oral control position, and created positions by gently pushing downward on the chin while the student tried to move the jaw upward.

3. Pressure was applied lightly to relax the masseters if tight, or to tighten if loose. This was designed to add awareness of the bite and jaw movements.

4. The masseters were stretched by placing the fingers of both hands at the bottom of the jaw line. Stretching was achieved by pulling upward.

Table 1

Oral Volitional Jaw Movements

Student	1	2	3	4	5	6	7
Resistance to Downward Movement	-	+	+	-	+	-	+
Resistance to Upward Movement	+	+	-	-	+	-	+
Pressure	+	-	-	-	+	-	+
Stretching	+	-	+	-	+	-	+

Table 1 indicated that 53 percent of the total responses by the target group were positive. Two students had all positive responses for oral volitional jaw movements, while two students had all negative responses.

Table 2 was designed to assess lip movements to see if there was a problem with lips being too loose or too tight. The acquisition of lip movement for normal functioning children should be developed by age three (Bailey & Wolery,

1989). Therapy must address a student's need to increase the range of lip movement, strengthen lip movement, or build upvoluntary control of lip movement. The practicum writer initiated lip movements by exaggerated lip positions; the students followed through by imitation.

Table 2

Oral Volitional Lip Movements

Student	1	2	3	4	5	6	7
Show Teeth	+	+	+	-	+	-	+
Alternate Pucker And Smile	+	-	+	-	-	-	-
Blow With Puckered Lips	+	-	-	-	+	-	+
Puff Out Cheeks	+	-	-	-	-	-	-

Table 2 showed 39 percent of the total number of responses were positive. One student had all positive results.

The most difficult oral volitional lip movement was the puff out cheeks movement.

Table 3 illustrated the students' awareness of the tongue and it's movement. Bailey and Wolery (1989) indicated that normal functioning children by 18 months of age have a functional awareness of tongue and tongue movement. Through the use of imitation, the practicum writer encouraged the target group to duplicate tongue movements.

Table 3

Oral Volitional Tongue Movements

Student	1	2	3	4	5	6	7
Touch Nose And Chin With Tongue	-	-	-	-	-	-	-
Wiggle Tongue From Side To Side	+	-	-	-	-	-	-
Lick Lips All Around	-	-	-	-	-	-	-
Click Tongue	+	-	-	-	-	-	+

Table 3 illustrated oral volitional tongue movements to be the most difficult for the students to perform. Eleven percent of the total number of responses were positive. The exercises were difficult for the students to perform.

Table 4 indicated test score irregularities in oral production of the 21 vowel and consonant sounds typically used by three to four year olds. Many sounds should be made by the teeth and tongue, some with the lips, and others by pressing the tongue to the roof of the mouth. (Cook, Tessier, & Klein,1992). The target group was assessed by repeating multisyllabic words.

Table 4

Vowel and Consonant Production in

Multisyllabic Words

Student	1	2	3	4	5	6	7
a	+	+	+	-	+	-	+
e	+	+	+	+	+	-	+
i	+	+	+	+	+	-	+
o	+	+	+	-	+	-	+
u	+	+	+	-	+	-	+
h	+	+	-	-	+	-	+
p	+	+	+	-	+	-	+
b	+	+	+	-	+	-	+
m	+	+	+	-	+	-	+
n	+	+	+	-	+	-	+
k	+	-	+	-	+	-	+
d	+	+	+	-	+	-	+
f	+	-	-	-	-	-	-
ng	+	-	-	-	-	-	-
y	+	-	-	-	+	-	-
t	+	+	-	-	+	-	-
w	+	+	-	-	+	-	-
g	+	-	+	-	+	-	-
s	+	-	-	-	-	-	+
r	+	-	-	-	-	-	-
l	+	-	+	-	-	-	-

Table 4 indicated that the target population orally produced 53 percent of the vowel and consonant sounds in multisyllabic words. One student was unable to positively

respond to the vowel and consonant multisyllabic words.

Table 5 showed the results of producing diadochokinetic tasks. Students were asked to repeat monosyllables- /p^/, /t^/, and /k^/ and repeat combined monosyllables- /p^-t^-k^/ oral sounds and words. Young children speak in two and one-half syllables per second, which means the speech muscles must be adjusted five times per second to support conversational speech (Peterson, 1987).

Table 5

Diadochokinetic Tasks

Student	1	2	3	4	5	6	7
/p^/	+	+	+	-	+	+	-
/t^/	+	+	+	-	+	-	+
/k^/	+	-	+	-	+	-	+
/p^-t^-k^/	+	-	-	-	-	-	-

Table 5 illustrated that 54 percent of the total number of responses were positive. Diadochokinetic tasks proved to be a challenge for six of the seven students. One student had all correct responses.

The results of the pre-test (Appendix A, pg.66) suggested that the target group had deficits in oral motor skills. The pre-test indicated a discrepancy between a typical assessment of normal functioning three to five year old pre-schoolers and the pre-test results of the target group. By statistical evidence, the writer identified a discrepancy in the level of oral motor skill acquisition between normal functioning and developmentally delayed preschoolers.

Outcome Objectives

The practicum project was designed to increase communication skills by strengthening the development of the student's jaw, lip, and tongue movements. The pre-test (Appendix A, pg.66) was used to measure oral motor skills within the target group. An intensive oral motor skill program was created, through collaborative effort of the practicum writer and the speech and language pathologist, to assist the target group's ability to increase communication skills. The proposed objectives were:

1) Following a 12 week implementation period, 70 percent of the target group will be able to perform oral volitional jaw movements with 70 percent accuracy, as measured by the difference between the score achieved on the writer-designed pre-test and post-test.

2) Following a 12 week implementation period, 70 percent of the target group will be able to perform oral volitional lip movements with 70 percent accuracy, as measured by the difference between the score achieved on the writer-designed pre-test and post-test.

3) Following a 12 week implementation period, 70 percent of the target group will be able to perform oral volitional tongue movements with 70 percent accuracy, as measured by the difference between the score achieved on the writer-designed pre-test and post-test.

4) Following a 12 week implementation period, 70 percent of the target group will be able to perform vowel and consonants speech sounds in multisyllabic words with 70 percent accuracy, as measured by the difference between the score achieved on the writer-designed pre-test and post-test.

5) Following a 12 week implementation period, 70 percent of the target group will be able to perform diadochokinetic tasks with 70 percent accuracy, as measured by the difference between the score achieved on the writer-designed pre-test and post-test.

CHAPTER II

Research and Solution Strategy

Oral Motor Skill Development

Pre-kindergarten students with various developmental delays have an acute need to communicate through expressive oral speech. Peterson (1987) indicated that speech development and language learning progress rapidly from birth to age three or four. Receptive and expressive speech are just beginning to evolve and are, therefore, incomplete and inadequate. The production of speech involves precise coordination of many muscles and muscle groups, which include structured movements of the tongue, lips, jaw, larynx, velum, and respiratory system.

All factors involved in articulated speech make the simple act of speaking very complex. More than one hundred muscles need to be neurologically informed to contract, or

relax, in order to begin and end each syllable. Children do not make each speech sound or syllable in isolation; instead, sounds that affect each other are often adjoined and overlapped. The level of difficulty in mastering motor aspects of articulation will cause developmentally delayed children to fall behind in acquiring communication skills (Cook, Tessier, & Klein, 1992).

Marshalla (1992) stated that the oral mechanism first functions as a whole body. Independent use of the jaw, lip, and tongue necessitates production for mature speech. Hypotonia in the facial muscles often cause children to acquire stiffness and or tightness in some part of the face. Facial muscles that exhibit tightness usually make the tongue less mobile and less able to expand the movements necessary for refined speech.

Marshalla (1992) asserted that speech is a coordinated movement effort of the oral, pharyngeal, laryngeal, and respiratory mechanisms, which can be effected by a deficit in

any of the seven sensory receptors. Children with oral-tactile hypersensitivity in the oral mechanism have difficulty tolerating new food textures, and participating in hand-to-mouth and object-to-mouth play. Lack of engagement in oral motor play does interfere with the natural process of early oral motor learning, and can have a negative influence on normal oral speech development.

Oral motor skills need to be developed and refined with specific instruction and practice as students progress. Oral motor skills in feeding and speech have generally evolved through a highly predictable sequence. Most children learn the oral motor movements for /b/, /m/, and /w/ earlier than those needed for /r/, in part because the movements required for bilabials develop earlier than movements necessary for /r/ (Marshalla, 1992).

A key therapeutic approach to normalizing oral motor sensitivity in young children should begin with oral self-exploratory play. Systematic touch activities to the face

will facilitate more appropriate tactile responses in children who are too sensitive, or not sensitive enough, to various stimuli. Children learn to move the jaw, lips, and tongue more rapidly and easily when an object can be used. Socially Appropriate Things to Put In and On the Mouth (SATPIOM) were designed to stimulate oral motor movement. Objects were used to increase awareness of jaw, lip, and tongue position. Effective SATPIOMs that were safe and sanitary included: toothbrushes, button pulls, coffee stirrers, flavored tongue depressors, lip gloss, dry wash cloths, straws, bubbles, toothpaste, lotion, tongue pulls, and appropriate size and textured foods (Marshalla, 1994).

Many developmentally delayed pre-kindergarten children exhibit slower than average cognitive abilities, which require thoughtful planning and reliable implementation for speech therapy. The oral motor system must reach a certain level of development for functional speech production to be activated. Although the sequence of oral motor growth is usually the

same for all children, the attainment rate is slower for children with developmental delays. Oral motor therapy with frequent and repetitive practice is crucial to speech and language development. Wilcox, Bashir, and Ferketic (1989) stated that oral motor disabilities, specifically those affecting preverbal oral motor development, and speech sound production, take time to remediate. Many experts consider remediation to be a progressive element in any service delivery system to young children. The focus of such intervention was designed to improve functioning in specific delayed areas. In many instances a remedial approach to developmental speech delays has prevented or alleviated future communication disorders.

Collaborative Service Delivery Models

Theories regarding the discrepancy between current speech pull-out programs and contemporary research opinion on various collaborative models are extensive. Despite the wide chasm between traditional and collaborative

philosophies, there appears to be a perpetual shortage of qualified speech and language pathologists. It is a peremptory demand within many school systems that regular special education teachers must actively respond to the uniqueness of each student's delayed developmental condition. Frontline special education teachers should expand their own educational competencies where a limited substratum of instructional speech programs and personnel exist (Elksnin & Capilouto, 1994).

Eger (1992) lists four important reasons why there is an urgency to innovate service delivery models for school speech and language programs: tight fiscal policies, attention to quality management, outcome based education, and a changing definition of "at-risk" children. The author reported that federal funding of special education has never come close to the forty percent level promised in the late 1970's through the mandates of PL 94-142. Many educational specialists have had to consider substantial changes in service delivery to

counterbalance program necessities with available funding.

Eger (1992) described how the focus on quality management had been translated into education. Demands for better student outcomes for the same or less money had necessitated school speech and language services to look toward integrated collaborative models. Face to face client approaches, precise standards, and data-base decision making had been linked with outcome-based education practices. The author emphasized that a dynamic continuum of services should include: "classroom based instruction, curriculum based treatment, consultation/collaboration service delivery, large group/small group, and where indicated, individual treatment", (Eger, 1992, p.40).

The authors, Rhyner, Lehr, and Pudlas (1990) maintained that a teacher's contingent responsiveness to a child's communicative attempts is a critical component in optimizing the classroom communication environment. Results of the study showed that teachers generally did not provide a

responsive communicative environment for young, developmentally delayed children, in either child-directed or teacher-directed activities. In some cases, activities used by the teacher were not conducive to the attainment of communication goals, but were justified instructional strategies designed to meet curricula objectives. In other cases, there was a possibility that the teachers were intentionally nonresponsive to nonlinguistic initiation in order to facilitate verbal language usage. The authors' study revealed that developmentally delayed preschool children needed high quality contingent responses, and increased frequency of interaction by the classroom teacher to promote language acquisition and communication development.

Huffman (1992) stated that under the professional guise of consultants, experts, and specialists a distancing factor indirectly emerges, and is often maintained within the educational system. Typically, speech and language therapists employ various "therapies", which the regular special

education teacher and other related service providers have perceived as independent remedial treatments, or direct service "fix-it" programs conducted in isolated environments. The author states that the misconception can compromise both functional practice and instructional effectiveness for disabled students.

Huffman (1992) promoted the concept of open minded planning and collaboration, with a focused view toward outcomes relative to a student's circumstances. Instructional/therapeutic development and innovative supervision programs were endorsed as valid methods to improve communication and interpersonal techniques. The author conceptualized the key word outcome with augmentive involvement and co-teaching partnerships.

Russell and Kaderavek (1993) identified two main barriers that prevent the implementation of effective collaboration models. In the past, consultative relationships were frequently based on a hierarchical structure, in which

one party was typically empowered in a specialist role. Often, attitudinal issues created barriers to collaborative relationships within the actual workings of classroom instruction. Without equal opportunity to shape remediation strategies, the regular special education teacher could not fully participate as a viable interactive member.

The authors suggested that peer coaching and co-teaching models could be possible alternatives for practical collaborative partnerships. In peer coaching, the advantage for both a speech and language pathologist and classroom teacher centered around instructional refinement within an atmosphere of collegiality and experimentation. The model encouraged both instructors to use new teaching strategies, and through observation, identify distinct areas that needed improvement.

In co-teaching the regular classroom instructor plans activities to meet curriculum objectives and IEP goals, while the speech and language pathologist combines the curriculum

to meet the communication goals of the student. The model enhances professional knowledge through sharing know-how and perspective. The co-teaching partnership also relies upon problem solving strategies, not only to expand instructional alternatives, but to reinforce the collaborative bond.

The issue of parity, raised by Pugach and Johnson (1989), is often a point of contention relevant to the implementation of a collaborative model between the classroom teacher and specialist. The main obstacle, as the authors stated, concerns the tendency among specialists to take on an expert posture, which reflect titles held, rather than contributions made to a collaborative effort. A void in the reciprocal nature of collaboration is often illustrated by the limited guidance offered regarding particular types of assistance, or of the contribution classroom teachers can, or should bring to specialists. The authors urged that specialists shed the "expert" image in order to accommodate input from the classroom teacher, and to better serve the needs of students.

Pugach and Johnson (1989) recognized that collaborative efforts work best when colleagues have a common understanding of both the strengths and weaknesses of team members, and show a desire to build a bridge of mutual respect.

Solution Strategies

Addressing the challenges facing service delivery models can be accomplished by separating two main issues. One matter of contention pertains to the appropriate funding and staffing of special education programs which, for the purpose of this practicum, is an extraneous topic. The principal point in question deliberates upon both the merit and application of two categorical strategies designed to affirm teacher collaboration and improve student outcome.

Service delivery models that make full use of collaborative planning and instruction are by nature dynamic. Instructional experimentation should be implicit within the structure of collaboration, as different service delivery

techniques serve to explore efficacious outcomes. Well planned strategies and repetitive practice time are key determinants to successful student outcomes. Through collaborative consultation; modeling and imitation, practice and feedback, can be used in the classroom to improve various parts of the oral mechanism needed to increase articulate intelligible speech.

Solution strategies that attempt to improve the instructional delivery system for developmentally delayed pre-kindergarten students, with moderate to severe oral speech deficits, must be comprehensive. The practicum writer believes that adopting the most suitable aspects from various collaborative intervention models, and integrated service delivery systems, will produce the desired outcomes. Processing a functional hypothesis from research materials is a deductive calculation, built first and foremost upon the evidence and inspiration of other authors' written work.

Both Russell and Kaderavek (1993), as well as Pugach and

Johnson (1989), illustrated that philosophical commonality between the specialist and classroom teacher should be a large part of the collaborative relationship. A positive atmosphere for communication must exist in which both instructors relinquish some autonomy in order to achieve a sense of professional unity. Through a realization of academic backgrounds and occupational experiences, the practicum writer believes each collaborative team should formulate the necessary uniqueness to achieve a successful working relationship.

Eger (1992) cites a pragmatic approach to collaborative intervention models that direct instruction into the regular classroom environment. By consultative efforts of the speech and language pathologist, the special education teacher can integrate a jointly promoted oral motor therapy into the daily lesson plan. Utilizing specific advice, as well as sharing in the use of materials and information, should increase the opportunity that a continuum of services will meet the

communication needs of developmentally delayed pre-kindergarten students.

The last fundamental rationale in reaching part of the solution strategy involves the engagement of activities that aid the natural process of oral motor learning. Wilcox, Baskir, and Ferketic (1989) believe that directed oral motor therapy begins with frequent and repetitive practice. Marshalla (1994) focuses on jaw, lip, and tongue movements in which repetitive practices, like oral motor play with SATPIOM objects, increase communication skills. Through oral motor play on a recurring basis with a variety of SATPIOMs, students become more receptive to facial muscle movements. The practicum writer believes that the solution strategy will not only increase both awareness of the oral mechanism, and the distinction of separate oral movements, but also help normalize oral tactile responsiveness, and achieve useful speech sound production.

CHAPTER III

Method

Process

An oral motor skill program was designed to be implemented for a period of twelve weeks. Each of the three oral volitional areas; jaw, lip, and tongue had four weeks of activities designed to increase oral motor activity. On the first day of each week's program, a demonstration of the oral motor activity was performed by the speech and language pathologist. The demonstration assisted the practicum writer to the correct position of the jaw, lip, and tongue. The practicum writer followed through with implementation activities for the remainder of the week. Duration time for each activity per student was approximately 15 minutes. A review and assessment took place on the fifth day of that week's therapy. The first day of each week included a review

of the previous week's therapy. The practicum writer kept a daily record (Appendix B, pg.70) of each student's performance to determine the level of oral motor skill progress. Following the twelfth week of implementation, the students were given a post-test (Appendix A, pg.66).

Collaborative Strategy

Activities designed for implementation were fully researched and analyzed by both the practicum writer and the speech and language pathologist. Decisions were made to combine the most appropriate activities by Marshalla (1994) and Cleveland, Caton, and Adler (1994) for oral motor therapy. The SATPIOM program by Marshalla (1994) was of particular usefulness due to the great variety of objects used to stimulate movement for speech training. The object-to-mouth play activities combined remedial instruction with playful amusement. A resource guide from Cleveland, Caton, and Adler (1994) provided unique yet simple activities which promoted and stimulated the target groups' communication

skills.

Enthusiasm and encouragement were some of the important benefits which the collaborative effort succeeded in providing. Co-planning strategies with the speech and language pathologist proved to be valuable in the area of speech development. The practicum writer was responsible for providing all the various materials used for oral motor therapy, which was located in the classroom on a large portable cart.

Day One thru Five: Each student within the target group performed the following exercises to help stabilize the jaw and keep the jaw closed. The exercises were designed to increase jaw muscle tone. The exercises were carried out by:

1. Chewing gummy hearts with the mouth closed.
2. Clenching a styrofoam cup in the mouth with two bear counters in the cup while laying on top of a scooter on the stomach, and moving around the room.
3. Biting down on a coffee stirrer with the mouth closed.

4. Rubbing an apple fragrance lotion into the cheeks and face to relax and tone the musculature.

5. Exercising the masseter muscles, assessing, and reviewing.

Day Six thru Ten: Each student within the target group performed the following exercises to help stabilize the jaw and keep it closed. The exercises were designed to increase jaw muscle tone. The exercises were carried out by:

1. Chewing gummy bears with the mouth closed.

2. Clenching a terry washcloth in the mouth while making puppy dog sounds.

3. Biting down on a straw with the mouth closed.

4. Rubbing a peach fragrance lotion into the cheeks and face to relax and tone the musculature.

5. Exercising the masseter muscles, assessing, and reviewing.

Day Eleven thru Fifteen: Each student within the target group performed the following exercises to help

stabilize the jaw and keep it closed. The exercises were designed to increase the jaw muscle tone. The exercises were carried out by:

1. Chewing bubble gum with the mouth closed.
2. Playing a tugging game with a terry washcloth in the mouth.
3. Biting down on frozen strawberry licorice with the mouth closed.
4. Making ghost faces by brushing cornstarch on cheeks, nose, and chin.
5. Exercising the masseter muscles, assessing, and reviewing.

Day Sixteen thru Twenty: Each student within the target group performed the following exercises to help stabilize the jaw and keep it closed. The exercises were designed to increase jaw muscle tone. The exercises were carried out by:

1. Chewing gummy worms with the mouth closed.

2. Playing "this is the way we wash our face" with a terry washcloth.

3. Playing a shell cover-up game in which the students blow through a straw into a basin of soapy water to cover up the shells with bubbles.

4. Rubbing strawberry fragrance lotion into the cheeks and face to relax and tone the musculature.

5. Exercising the masseter muscles, assessing, and reviewing.

Day Twenty-One thru Twenty-Five: Each student within the target group performed the following exercises to help increase lip strength. The exercises were designed to increase lip muscle tone. The exercises were carried out by:

1. Holding a three-quarter inch button tied to a string between the lips, while the practicum writer pulls on the string.

2. Holding a straw between the lips using a sucking breath while picking up a piece of tissue paper and

placing it into a container.

3. Sitting two feet in front of a hanging beachball, moving the ball by blowing on a blowout party favor.

4. Sucking up a half inch cooked noodle between the lips.

5. Massaging exercises to relax the lips to improve lip closure, assessing, and reviewing.

Day Twenty-Six thru Thirty: Each student in the target group performed the following exercises to help increase lip strength. The exercises were designed to increase lip muscle tone. The exercises were carried out by:

1. Taking a small amount of water in the mouth and "squishing" the water into the left cheek then into the right cheek.

2. Blowing through a straw students will be "parking" a small plastic car into an empty milk carton taped to the floor.

3. Lying on the stomach, blowing through a straw and pushing a cotton ball from a start to finish line.

4. Sucking up cooked egg noodles between the lips.

5. Massaging exercises to relax the lips to improve lip closure, assessing, and reviewing.

Day Thirty-One thru Thirty-Five: Each student in the target group performed the following exercises to help increase lip strength. The exercises were designed to increase lip muscle tone. The exercises were carried out by:

1. Placing two buttons on a string, holding a button between the lips, playing a "tug of war" game with the practicum writer.

2. Blowing through a straw uncovering five teddy bear counters buried in kosher salt in a two inch pan.

3. Blowing bubbles.

4. Sucking up cooked fettucine noodles between the lips.

5. Massaging exercises to relax the lips, to improve lip closure, assessing, and reviewing.

Day Thirty-Six thru Forty: Each student in the target

group performed the following exercises to help increase lip strength. The exercises were designed to increase lip muscle tone. The exercises were carried out by:

1. Blowing through a straw, mixing colored water on a piece of aluminum foil.
2. Sucking up applesauce through a straw.
3. Picking up a cottonball by inhaling through a straw and placing it in a container.
4. Sucking up spaghetti through the lips.
5. Massaging exercises to relax the lips, to improve lip closure, assessing, and reviewing.

Day Forty-One thru Forty-Five: Each student in the target group performed the following exercises to help increase the tongue's range of motion. The exercises were designed to increase tongue muscle tone. The exercises were carried out by:

1. Looking into a mirror, and licking peanut butter off a tongue depressor.

2. Licking off two small dots of bubblegum flavored toothpaste located on the right and on the left side of cheek near lips, using the tongue to lick off the toothpaste.

3. Using the tip of the tongue, holding a gummy lifesaver against the alveolar ridge.

4. Using the tongue pushing a ping-pong ball on a table from a start to finish line.

5. Exercising to improve tongue movement, assessing, and reviewing.

Day Forty-Six thru Fifty: Each student in the target group performed the following exercises to help increase the tongue's range of motion. The exercises were designed to increase tongue muscle tone. The exercises were carried out by:

1. Licking yogurt off a tongue depressor.

2. Licking off two small dots of peanut butter on the left and right side of the cheek near lips, using the tongue to

lick off the peanut butter.

3. Using the tongue tip holding a raisin against the alveolar ridge.

4. Using the tongue, poking the left cheek then the right cheek.

5. Exercising to improve tongue movement, assessing, and reviewing.

Day Fifty-One thru Fifty-Five: Each student in the target group performed the following exercises to help increase the tongue's range of motion. The exercises were designed to increase tongue muscle tone. The exercises were carried out by:

1. Licking cheddar cheese spread off the tongue depressor.

2. Moving a straw around the mouth with the tongue.

3. Using the tongue tip holding a Cheerio against the alveolar ridge.

4. Pressing down on the tongue with a tongue depressor

forming a tongue bowl.

5. Exercising to improve tongue movements, assessing, and reviewing.

Day Fifty-Six thru Sixty: Each student in the target group performed the following exercises to help increase the tongue's range of motion. The exercises were designed to increase tongue muscle tone. The exercises were carried out by:

1. Licking a lollipop.
2. Placing two small dots of honey on the left and right cheek near the lips, using the tongue to lick off the honey.
3. Using the tongue tip holding bubble gum against the alveolar ridge.
4. Brushing the tongue with a toothbrush.
5. Exercising to improve tongue movements, assessing, and reviewing.

The prescribed activities enabled the target group to

understand facial sensory perception correctly. The implementation format developed a wider foundation for jaw, lip, and tongue movement and speech production. The exercises were designed to encourage self exploration and increase muscle tone of the oral mechanism. It was anticipated that, with improved self discovery and confidence, greater oral motor ability would be achieved.

CHAPTER IV

Results

The post-test (Appendix A, pg.66) results indicated that the target group had improved in oral motor skills after the implementation of the oral motor program. The post-test given is represented by the following Tables 6-10. The plus (+) signs state a positive response was given, and the minus (-) signs state an incorrect response was given. Facial manipulation, modeling, and verbal imitation were employed to determine skill level. Each student was given one trial for each oral movement and sound response.

Tables, as follows:

Table 6

Oral Volitional Jaw Movements

Student	1 Pre/ Post	2 Pre/ Post	3 Pre/ Post	4 Pre/ Post	5 Pre/ Post	6 Pre/ Post	7 Pre/ Post
Resistance to Downward Movement	-/+	+/+	+/+	-/+	+/+	-/+	+/+
Resistance to Upward Movement	+/+	+/+	-/+	-/+	+/+	-/+	+/+
Pressure	+/+	-/+	-/-	-/+	+/+	-/+	+/+
Stretching	+/+	-/+	+/-	-/+	+/+	-/+	+/+
	Percent Correct						
	75/ 100	50/ 100	50/ 50	0/ 100	100 / 100	0/ 100	100/ 100

The first objective of the study was to achieve at least a 70 percent mastery of the oral volitional jaw movements. The success rate for each student was determined by the degree of proficiency in completing the various facial manipulation activities. The target group test score of 93 percent accuracy showed a 40 percent increase in positive responses over the pre-test score. Table 6 shows that six out of seven students

were able to achieve 100 percent accuracy. Part of the overall success was due to the fun nature of the repetitive SATPIOM activities. The students' jaw tone muscles were increased due to the varied exercises of the oral motor program.

Table 7

Oral Volitional Lip Movements

Student	1 Pre/ Post	2 Pre/ Post	3 Pre/ Post	4 Pre/ Post	5 Pre/ Post	6 Pre/ Post	7 Pre/ Post
Show Teeth	+/+	+/+	+/+	-/+	+/-	-/+	+/+
Alternate Pucker And Smile	+/+	-/+	+/+	-/+	-/+	-/+	-/+
Blow With Puckered Lips	+/+	-/-	-/+	-/+	+/+	-/+	+/+
Puff Out Cheeks	+/+	-/+	-/-	-/-	-/+	-/+	-/-
	Percent Correct						
	100/ 100	25/ 75	50/ 75	0/ 75	50/ 100	0/ 100	50/ 75

The second objective had the highest increase in positive responses by 47 percent over the pre-test scores. This substantial increase was realized from various exercise

stimuli generated from the enjoyable experience the students had with repetitive activities. The target group was asked to imitate exaggerated lip positions in order to assess the ability of voluntary lip control movements. Table 7 indicates that all the students were able to perform more than 75 percent of the oral volitional lip movements.

Table 8

Oral Volitional Tongue Movements

Student	1 Pre/ Post	2 Pre/ Post	3 Pre/ Post	4 Pre/ Post	5 Pre/ Post	6 Pre/ Post	7 Pre/ Post
Touch Nose And Chin With Tongue	-/-	-/-	-/-	-/-	-/-	-/-	-/-
Wiggle Tongue From Side To Side	+/+	-/+	-/+	-/+	-/-	-/+	-/-
Lick Lips All Around	-/+	-/-	-/-	-/-	-/-	-/-	-/-
Click Tongue	+/+	-/-	-/-	-/+	-/+	-/+	+/-
	Percent Correct						
	50/ 75	0/ 25	0/ 25	0/ 50	0/ 25	0/ 50	25/ 0

The results of the third objective showed the lowest post-test scores. Imitation and modeling techniques were used to assess tongue movements. Although SATPIOMs were used frequently, the students had great difficulty maximizing tongue movements. Tongue awareness and muscle control proved to be a greater challenge than expected. Table 8 indicates that six out of seven students scored 50 percent or lower for oral volitional tongue movements.

Table 9

Vowel and Consonant Production in

Multisyllabic Words

Student	1 Pre/ Post	2 Pre/ Post	3 Pre/ Post	4 Pre/ Post	5 Pre/ Post	6 Pre/ Post	7 Pre/ Post
a	+/+	+/+	+/+	-/+	+/+	-/+	+/+
e	+/+	+/+	+/+	+/+	+/+	-/+	+/+
i	+/+	+/+	+/+	+/+	+/+	-/+	+/+
o	+/+	+/+	+/+	-/+	+/+	-/+	+/+
u	+/+	+/+	+/+	-/+	+/+	-/+	+/+
h	+/+	+/+	-/-	-/+	+/+	-/-	+/+
p	+/+	+/+	+/+	-/+	+/+	-/+	+/+
b	+/+	+/+	+/+	-/+	+/+	-/+	+/+
m	+/+	+/+	+/+	-/+	+/+	-/+	+/+
n	+/+	+/+	+/+	-/+	+/+	-/+	+/+
k	+/+	-/+	+/+	-/-	+/+	-/+	+/+
d	+/+	+/+	+/+	-/+	+/+	-/-	+/+
f	+/+	-/-	-/+	-/-	-/-	-/-	-/+
ng	+/+	-/-	-/+	-/-	-/-	-/-	-/-
y	+/+	-/-	-/+	-/-	+/+	-/+	-/+
t	+/+	+/+	-/+	-/+	+/+	-/-	-/-
w	+/+	+/+	-/+	-/+	+/+	-/-	-/-
g	+/+	-/-	+/+	-/-	+/+	-/+	-/+
s	+/+	-/+	-/+	-/-	-/+	-/-	-/-
r	+/+	-/-	-/-	-/-	-/+	-/-	-/-
l	+/+	-/+	+/+	-/-	-/-	-/-	-/-
	Percent Correct						
	100/ 100	62/ 76	62/ 90	9/ 62	76/ 86	0/ 57	57/ 81

The fourth objective represented speech sound evaluations based upon the oral production of 21 vowels and

consonants. The criteria of this objective combined tongue, lip, and jaw movements. The target group was assessed by repeating multisyllabic words. The post-test increase of positive responses over the pre-test level was 26 percent. Twelve weeks of implementation were necessary to be able to reach a post-test positive response of 79 percent. Table 9 indicates that five out of the seven students were able to achieve a score of 76 percent or better. The carry over benefit of the first three objectives and exercise activities were manifested in the increased production of word sounds.

Table 10

Diadochokinetic Tasks

Student	1 Pre/ Post	2 Pre/ Post	3 Pre/ Post	4 Pre/ Post	5 Pre/ Post	6 Pre/ Post	7 Pre/ Post
/p^/	+/+	+/+	+/+	-/-	+/+	+/+	-/+
/t^/	+/+	+/+	+/+	-/+	+/+	-/+	+/+
/k^/	+/+	-/+	+/+	-/-	+/+	-/+	+/+
/p^-t^-K^/	+/+	-/-	-/-	-/-	-/-	-/-	-/-
Percent Correct							
	100/ 100	50/ 75	75/ 75	0/ 25	75/ 75	25/ 75	50/ 75

The outcome of the fifth objective showed the smallest percentage increase of positive responses between the pre and post-test of only 17 percent. The target group was evaluated by repeating monosyllables- /p^/, /t^/, and /k^/ and combined monosyllables- /p^-t^-k^/ oral sounds and words. Skill development in producing diadochokinetic tasks was slow to evolve. Table 10 shows, that although three of the seven students had the same pre and post-test scores, another three students improved by 25 percent. The objective was met by six of the seven who scored 75 percent or better.

The outcomes from the prescribed oral motor activities enabled the target group to become better verbal communicators. Through the implementation format and collaborative strategy, students were able to develop a wider foundation for speech production. The repetitive nature of the oral motor activities were designed to encourage each child's self-exploration of oral motor movements and word sound production.

CHAPTER V

Recommendations

The practicum writer advocates the use of collaborative efforts between special education instructors and speech and language pathologists, for those who have students that require speech and language therapy. The blend of instructional expertise implemented within the daily lesson plan greatly improve communication skills in developmentally delayed pre-kindergarten students. A focused collaborative strategy has proven to be an effective method of speech therapy, where there is a shortage of speech and language pathologists.

The positive results of the study encourage a desire to continue the oral motor program for a full school year. Many of the exercise activities could easily be expanded into a

comprehensive program that would benefit the pre-kindergarten curriculum. A practical recommendation required for the program's success would include available funding to purchase consumable SATPIOMs for the students. The writer intends to share the oral motor program and results of the study with other Pre-kindergarten and ESE teachers within the school district.

Reference List

Bailey, D., & Wolery, M. (1989). Assessing Infants and Preschoolers with Handicaps. Ohio: Merrill Publishing Company.

Cleveland, A., Caton, B., & Adler, L. (1994). Activities Unlimited. Illinois: Building Blocks.

Cook, R., Tessier, A., & Klein, D. (1992). Adapting Early Childhood Curricula for Children with Special Needs. New York:Macmillan Publishing Company.

Eger, D. (1992, November). Why now? Changing school speech-language service delivery. American Speech-Language-Hearing Association, p. 40.

Elksnin, L. & Capilouto, G. (1994, October). Speech-language pathologists' perceptions of integrated service delivery in school settings. Language, Speech, and Hearing Services in Schools, 25, 258-267.

Huffman, N. (1992, November). Challenges of Education Reform. American Speech-Language-Hearing Association, p. 41-44.

Marshalla, P. (1992, June) Oral-Sensorimotor Therapy. Paper presented at the Innovation Concepts, Inc. Conference, Florida.

Marshalla, P. (1994, Spring). SATPIOM's? Socially Appropriate Things to Put In and On the Mouth. Speech and Language Therapy Newsletter, 10-12.

Marshalla, P. (1994, July). The Non-Verbal Apraxic Child Speech and Language Techniques. Paper presented at the Innovative Concepts, Inc. Conference, Florida.

Peterson, N. (1987). Early Intervention For Handicapped And At-Risk Children. Denver: Love Publishing Company.

Pugach, M., Johnson, L. (1989, November). The challenge of implementing collaboration between general and special education. Exceptional Children, 56 (3), 232-235.

Rhyner, P.M., Lehr, D. H., & Pudlas, K. A. (1990, April). An analysis of teacher reponsiveness to communicative initiations of preschool children with handicaps. Language, Speech, and Hearing Services in Schools, 21, 91-97.

Russell, S. & Kaderavek, J. (1993 April). Alternative models for collaboration. Language, Speech, and Hearing Services in Schools, 24, 76-78.

Wilcox, M., Bashir, M., & Ferketic, M. (1989, May). Communication-based services for infants, toddlers, and their families. American Speech-Language-Hearing Association, p. 32-33.

Appendices

APPENDIX A
PRE AND POST-TEST ORAL MOTOR SKILLS EVALUATION

APPENDIX A
PRE AND POST-TEST ORAL MOTOR SKILLS EVALUATION

Oral Volitional Jaw Movements

Student	1	2	3	4	5	6	7
Resistance to Downward Movement							
Resistance to Upward Movement							
Pressure							
Stretching							

Oral Volitional Lip Movements

Student	1	2	3	4	5	6	7
Show Teeth							
Alternate Pucker And Smile							
Blow With Puckered Lips							
Puff Out Cheeks							

Oral Volitional Tongue Movements

Student	1	2	3	4	5	6	7
Touch Nose And Chin With Tongue							
Wiggle Tongue From Side To Side							
Lick Lips All Around							
Click Tongue							

Vowel and Consonant Production in Multisyllabic Words

Student	1	2	3	4	5	6	7
a							
e							
i							
o							
u							
h							
p							
b							
m							
n							
k							
d							
f							
ng							
y							
t							
w							
g							
s							
r							
l							

Diadochokinetic Tasks

Student	1	2	3	4	5	6	7
/p^/							
/t^/							
/k^/							
/p^-t^-k^/							

APPENDIX B
DAILY RECORD

APPENDIX B
DAILY RECORD

Activities

Student	Day 1 & Review	Day 2	Day 3	Day 4	Day 5 Review & Assessment
1					
2					
3					
4					
5					
6					
7					

A plus (+) sign states a positive response was given, and a minus (-) sign states an incorrect response was given.